

**REMARKS**

Applicants respectfully request reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow. Applicants respectfully request that the foregoing amendments be entered, at least because they narrow the issues for appeal.

Claim 4 has been amended. Support for the amendment to claim 4 can be found at least in FIG. 4B and the corresponding description in the specification.

Claims 3-7, 10-12 and 14 remain pending in this application.

**Examiner interview**

Applicants appreciate the Examiner interview of December 9, 2009, with Examiner Elve. Applicants' representative, Thomas G. Bilodeau, and Examiner Elve discussed the feature of claim 4 where the groove has a trench shape "extending into the flat surface." Applicants understand Examiner Elve's interpretation of the groove "extending into the flat surface" to be that the groove must be widened, and that the groove "extending" means extending across the surface, and not in a direction perpendicular to and into the surface.

While applicants do not agree with this interpretation, claim 4 has been amended to remove the word "extending," and to include the phrase "the groove being in the flat surface area." Thus, it is clear in claim 4, as amended, that the groove is in the flat surface.

**New matter**

The Amendment filed on September 17, 2008, was objected to under 35 U.S.C. 132(a) as introducing new matter into the disclosure. Specifically, the Patent Office stated on page 2 of the Office Action: "The added material which is not supported by the original disclosure is as follows: 'extending into the flat surface.'" This objection is moot in light of the amendment to claim 4 to remove the word "extending," and to include the phrase "the groove being in the flat surface area." This feature of amended claim 4 is supported by the original

disclosure including Fig. 4B, which illustrates the groove 34, and the specification on page 8 which states “as shown in Fig. 4B, it is also possible to form circular grooves 34 on the surface of the nozzle 29 facing the workpiece 6.”

### **Rejections under 35 U.S.C. § 103**

Claims 3-7 and 11-12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,060,686 to Jones (hereafter “Jones”) in view of U.S. Patent No. 6,667,456 to Mukasa et al. (hereafter “Mukasa”) or WO 96/38358 to Szelagowski et al. (hereafter “Szelagowski”). Claim 14 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Jones and Mukasa or Szelagowski. Claim 10 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Jones and Mukasa or Szelagowski, and further in view of U.S. Patent No. 3,632,955 to Cruickshank et al. (hereafter “Cruickshank”) or U.S. Patent No. 4,867,560 to Kunitsudu et al. (hereafter “Kunitsudu”). Applicants respectfully traverse these rejections for at least the following reasons.

Claim 4 recites “wherein the nozzle has a circular groove extending in a circumferential direction on the flat surface area facing the workpiece, the groove being in the flat surface area and having a trench shape.” The Patent Office recognizes that Jones does not disclose a circular groove in its nozzle, but relies on Mukasa or Szelagowski for disclosing such a feature. Applicants respectfully disagree.

Neither Mukasa nor Szelagowski discloses a groove having a trench shape on the flat surface area of a nozzle facing a workpiece, where the groove is in the flat surface area. Therefore, even if there were a proper reason to combine Mukasa or Szelagowski with Jones in the manner recited in the Office Action, which there is not, the combination would not have all the features of claim 4.

Mukasa discloses a laser welding apparatus with a nozzle 3 having a coaxial nozzle 6, a discharging nozzle 7, and an evacuating nozzle 8. None of the coaxial nozzle 6, discharging nozzle 7, or evacuating nozzle 8 of Mukasa, however, is a groove having a trench shape.

Rather, the nozzles 6, 7 and 8 pass all the way through the nozzle 3, and thus do not have a trench shape.

Szelagowski discloses a device for welding including a disc-shaped nozzle arrangement 13 with a resilient seal 15 to be urged against a workpiece 16. The nozzle arrangement 13 also has a plurality of apertures 17 in the surface of the nozzle. Szelagowski, however, does not disclose as recited in claim 4, “a circular groove extending in a circumferential direction on the flat surface area facing the workpiece, the groove being in the flat surface area and having a trench shape.” The apertures 17, while arranged in a flat surface of the Szelagowski nozzle facing the workpiece 16, do not extend in a circumferential direction, nor do they have a trench shape. Moreover, the elements 22 in the Szelagowski device are part of the resilient seal 15, and are not arranged in the flat surface of the nozzle facing the workpiece, and thus even if the elements 22 could possibly be considered to form trench shaped grooves, such grooves would not be in the flat surface of the nozzle facing the workpiece, as required in claim 4.

In sum, neither Szelagowski nor Mukasa discloses as recited in claim 4, “a circular groove extending in a circumferential direction on the flat surface area facing the workpiece, the groove being in the flat surface area and having a trench shape.” Thus, even if Jones were modified to include features from Szelagowski or Mukasa, the resultant structure would not have all the features of claim 4.

Moreover, it would not have been obvious to have modified Szelagowski or Mukasa to have the groove as recited in claim 4, where the groove has a trench shape and is in the flat surface area of the nozzle. The intended function of the Mukasa device is such that the nozzles 6, 7, and 8 pass all the way through the nozzle 3 to provide a flow path, and modifying Mukasa to have its nozzles 6, 7 and 8 in a trench shape would have rendered the Mukasa device unfit for its intended purpose. Similar considerations are relevant to the apertures 17 of Szelagowski. Moreover, even if the elements 22 of Szelagowski could possibly be considered to form trench shaped grooves, such “grooves” are not intended to be

in a flat surface area of the nozzle of the nozzle arrangement 13 of Szelagowski, but are intended to be a part of the resilient seal 15.

Cruickshank and Kunitsudu were cited for disclosing other features of the claims, but fail to cure the deficiencies of Jones, Szelagowski and Mukasa.

The dependent claims are patentable for at least the same reasons as claim 4, from which they depend either directly or indirectly, as well as for further patentable features recited therein. For example, claim 14 recites the "groove has a cross section which is one of rectangular, triangular or semicircular." This feature is not suggested by the references applied in the rejection, nor would it have been obvious to one skilled in the art based on the applied references.

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect

information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorize payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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